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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,385	03/24/2004	Po Sheng Shih	LEE.008	3332
20987	7590	02/29/2008	EXAMINER	
VOLENTINE & WHITT PLLC			RAINEY, ROBERT R	
ONE FREEDOM SQUARE				
11951 FREEDOM DRIVE SUITE 1260			ART UNIT	PAPER NUMBER
RESTON, VA 20190			2629	
			MAIL DATE	DELIVERY MODE
			02/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,385	SHIH, PO SHENG	
	Examiner	Art Unit	
	Robert R. Rainey	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 19 November 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-8 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-8 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 19 November 2007 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All . b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

DETAILED ACTION

Response to Arguments

1. Regarding the replacement declaration: Upon review of the originally filed declaration, Examiner agrees with Applicant that it did contain the required statement concerning 37 CFR 1.56 and thanks Applicant for his willingness to submit a replacement as requested even though he recognized that the replacement was requested in error.
2. Upon further consideration, Examiner withdraws the objection to the specification for failure to provide proper antecedent basis for some of the claimed subject matter.
3. The replacement sheet entered effectively overcomes the objection to the drawings.
4. The amendments to claims 1 and 6 effectively overcome the rejections based on 112 2nd paragraph.
5. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 1-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,002,540 to *Aoki* ("*Aoki*") in view of U.S. Patent No. 7,119,775 to *Ozaki* ("*Ozaki*").

As to **claim 1**, *Aoki* discloses a hold-type, i.e. active matrix, display with a pseudo impulse method and in particular: A method for defining gradation voltages of a liquid crystal display (LCD), comprising the steps of:

(a) applying a working voltage and a black voltage resulting in a brightness curve varying with time during a vertical scanning period sequentially to a plurality of pixels on the liquid crystal display within the vertical scanning period (See for example Fig. 3 and column 1 lines 47-60; note that one frame maps to a vertical scanning period).

Aoki does not expressly disclose:

(b) integrating the brightness curve with time during a duration of the brightness curve to obtain a product, and deriving an effective brightness from a quotient by dividing the product by the duration of the vertical scanning period;

(c) transferring the effective brightness into an effective light transmittance;

(d) iterating the aforesaid steps (a)-(c) to obtain a light transmittance vs. voltage curve; and

(e) defining a plurality of gray levels and gradation voltages corresponding to the plurality of gray levels according to the light transmittance vs. voltage curve.

Ozaki discloses a liquid crystal drive apparatus and gradation display method and in particular:

(b) integrating the brightness curve with time during a duration of the brightness curve to obtain a product, and deriving an effective brightness from a quotient by dividing the product by the duration of a period of interest (see for example column 7 lines 20-38, column 9 lines 23-30, Fig. 11, 12, 15, 16; *Ozaki* discusses particularly an application time or pattern time, i.e. period of interest, which includes a sequence of one or more voltage on/off periods Fig. 15); and to use this integrated area information to determine the drive levels (see for example column 9 lines 18-19).

Aoki and *Ozaki* are analogous art because they are from the same field of endeavor, which is active matrix displays.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to apply the method disclosed by *Ozaki*, of using the integral of the illumination over a period divided by the period to determine that the correct gray level had been achieved, to the vertical scanning period of the system of *Aoki*. The suggestion/motivation would have been to provide

advantages such as to express more visually appealing fine gradations (see for example column 9 lines 20-22).

Aoki as modified by *Ozaki* discloses the claimed invention except for

- (c) transferring the effective brightness into an effective light transmittance;
- (d) iterating the aforesaid steps (a)-(c) to obtain a light transmittance vs. voltage curve; and
- (e) defining a plurality of gray levels and gradation voltages corresponding to the plurality of gray levels according to the light transmittance vs. voltage curve.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to perform steps (c), (d) and (e) as claimed since these were well known in the art. Steps (d) and (e) are stated or implied in the specification of the instant application page 2 line 23 to page 3 line 3 as components of a well known prior art method. As to step (c): It would have been obvious to one having ordinary skill in the art at the time the invention was made to obtain the light transmittance curve as required by the system after *Aoki* from the effective brightness as taught by *Ozaki* by dividing the effective brightness by the brightness of the backlight since it was known in the art that the brightness is simply the input illumination intensity multiplied by the effective light transmittance.

As to **claim 2**, in addition to the rejection of claim 1 over *Aoki* and *Ozaki*, *Ozaki* further discloses the light transmittance vs. voltage curve expresses a dynamic relation between the light transmittance and the gradation voltages (The use of the integration method as disclosed by *Ozaki* as cited in claim 1 captures the dynamic relation between the gradation voltages. Since this data is then used to create the light transmittance vs. voltage curve the created curve expresses the claimed dynamic relationship. See also for example Fig. and 7, which further illustrate the relationship between applied voltage, time and transmittance).

As to **claim 3**, the rejection of claim 1 over *Aoki* and *Ozaki*, included coverage of the claimed step of dividing the effective brightness by the brightness of a backlight source in the liquid crystal display to obtain the effective light transmittance.

As to **claim 4**, in addition to the rejection of claim 1 over *Aoki* and *Ozaki*, *Aoki* further discloses that the liquid crystal display simultaneously employs a black-data-insertion driving method (see for example Fig. 3, which shows the drive periods interspersed with non-drive or black-data-insertion periods).

As to **claim 5**, in addition to the rejection of claim 1 over *Aoki* and *Ozaki*, *Ozaki* further discloses that the transmission curve has a rise time after the application of a drive voltage to achieve maximum transmission and a fall time

after removal of the drive voltage to achieve minimum transmission (see for example Fig. 5); and that both of these times are taken into account by the integration process as is whether or not the transmission ever achieves maximum transmission (see for example Fig. 12); and the use of voltages larger than those required for given steady state gray scale values in order to increase the response speed of the liquid crystal display (see for example column 8 lines 33-39).

Aoki and Ozaki disclose the claimed invention except for each of the gradation voltages given by step (e) being higher than each of the gradation voltages determined by a steady light transmittance vs. voltage curve. It would have been obvious to one having ordinary skill in the art at the time the invention was made to so set the voltages, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In this case the result effective variable is the gray voltage level.

As to **claim 6**, this claim repeats the steps of claim 5 with a slightly different preamble. The Examiner finds that the differences between the preambles do not result in differences in patentable weight. Therefore, claim 6 is rejected on the same grounds and arguments as claim 5.

As to **claim 7**, this claim repeats the steps of claim 5 and adds the step claimed in claim 4. Therefore, claim 6 is rejected on the same grounds and arguments as claim 5 plus the grounds and arguments of claim 4.

As to **claim 8**, this claim repeats the steps of claim 5 and adds the step claimed in claim 3. Therefore, claim 6 is rejected on the same grounds and arguments as claim 5 plus the grounds and arguments of claim 3.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert R. Rainey whose telephone number is (571) 270-3313. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571) 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RR/



AMARE MENGISTU
SUPERVISORY PATENT EXAMINER